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AUTHOR	Maglen, Leo; Smith, Chris Selby
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ABSTRACT

There are five major groups of stakeholders in vocational education and training (VET) in Australia: national and state governments; the technical and further education (TAFE) sector; private VET providers; employers; and students and trainees. The questions of who should provide and who should pay for VET in New South Wales (NSW) were explored through an analysis that began with examination of the following considerations: distinctions between general and specific training; considerations of efficiency and equity in determining the role that governments should play in the provision and funding of VET; and options arising from a consideration of public utility pricing policy. Next, the following aspects of the present situation in NSW were examined: input and output controls considered appropriate by the NSW government for state organizations classified according to their financial and market status; the broad organization and funding of TAFE in NSW; factors determining whether training programs are to be subsidized or charged out at full cost; and two recent reports on pricing issues. Broad funding options open to governments were reviewed. Finally, the following specific options for funding TAFE in NSW were considered: maintaining the status quo; instituting commercial fee exemptions; and establishing cost-reflective pricing. (MN)

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Leo Maglen and Chris Selby Smith

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MONASH UNIVERSITY - ACER

CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

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MONASH UNIVERSITY-ACER
CENTRE FOR THE ECONOMICS OF EDUCATION AND TRAINING

MONASH UNIVERSITY
Faculty of Education, Clayton, Victoria, Australia 3168 Telephone: 61 3 9905 9157 Facsimile: 61 3 9905 9184

1. INTRODUCTION

In October 1994 the NSW TAFE Commission commissioned Dr Leo Maglen and Professor Chris Selby Smith to review which of its "programs should be publicly subsidised and which programs should be fully 'user pays'".

While income from the national and international programs of TAFE PLUS has risen from $1 million in 1990/91 to $23.8 million in 1993/94, the Commission noted that these are small amounts compared to the total $0.9 billion budget of the Commission, and the $100 million or more from other income streams (mostly course fees and fees for services provided to the Commonwealth Government for its labour market programs).

This Report analyses the economic issues involved, examines the respective responsibilities of the various stakeholders and identifies strategies to achieve greater efficiency and equity.

The report is divided into five sections, of which this brief Introduction is the first. The second section discusses a range of conceptual issues. The third section considers the present position in New South Wales. The fourth section sets out a number of options designed to achieve greater efficiency and equity. The final section presents our conclusions.

2. CONCEPTUAL ISSUES

There are five major groups of stakeholders in vocational education and training (VET) in Australia.

(i) governments, both national and state, as the major funders of VET, and those who are driving the training reform agenda;

(ii) the TAFE sector, as major providers of VET in Australia;

(iii) private VET providers, who are beginning to play a much larger role in the burgeoning training market in Australia;

(iv) employers, in both the public and private sectors, who are the users of trained personnel, providers of on-the-job training, and, increasingly, active participants in the design and implementation of off-the-job training; and

(v) the students and trainees themselves.

This section of the Report canvasses some of the broad issues surrounding the questions of who should provide and who should pay for vocational education and training.

- Who is in the best position to know what is the most appropriate form, type and amount of training to be undertaken?

- Who is most able to provide that training in the most convenient, cost-effective and efficient manner?

- How can vocational education and training be funded in a way that best ensures equity and access, adequate cost-recovery, and responsiveness to the needs of industry and the preferences of trainees?

Three basic sets of considerations are addressed:

(a) the distinction between general and specific training;

(b) considerations of efficiency and equity in determining the role governments should play in the provision and funding of vocational education and training; and

(c) the options that arise from a consideration of public utility pricing policy.

A. General and Specific Training

This distinction is relevant to the distribution of training costs between trainees and training firms. It was first articulated by one of the pioneers of the economics of education, Gary Becker, in 1964.[1] In its original exposition Becker assumed a perfectly competitive labour market, with no active role played by government in either the funding or the provision of training. In this model, all training is provided by firms and the only issue is who finances the training — the trainee or the firm undertaking the training. Becker's contention was that this would depend upon who was in a position to earn an acceptable return on the investment that training represented.

General training is that training that imparts skills that are employable not only in the firm conducting the training but also in other firms using similar types of labour. That is, general training is that which is capable of raising the productivity of those who are trained across employers, not just within the firm that carries out the training. Examples of general training include language and literacy training, prevocational training, and most tradesmen and operative training of the sort covered by apprenticeships and traineeships.

Specific training, on the other hand, is training that is only of use to the firm conducting the training. It raises the productivity of trainees within the training firm, but the skills it imparts cannot be applied anywhere else. If a person leaves the firm the training he or she has received is of no value. Examples of specific training include company orientation programs, training in the manufacture of patented products, and in the ins and outs of processes, equipment and techniques unique to the training firm.

A lot of training, of course, has both general and specific elements. Some, but not all, of the skills and knowledge acquired through a training program are portable, the rest is only applicable to the training firm. An example would be training conducted by a firm in the automotive industry — some would cover general aspects of automotive engineering and vehicle construction, just as applicable to other firms in the industry, but elements of it could also refer solely to the idiosyncrasies of the particular models the training firm is currently producing.

Becker contended that in a perfectly competitive labour market a firm would conduct general training but not finance it, since it would not be in a position to earn an acceptable return on its investment. The trainee, on the other hand, would be in that position, and so would agree to bear the full cost of the training. The situation would be the reverse in the case of specific training — the training firm could earn an acceptable return on its investment and therefore would be in a position to fully finance the training undertaken.

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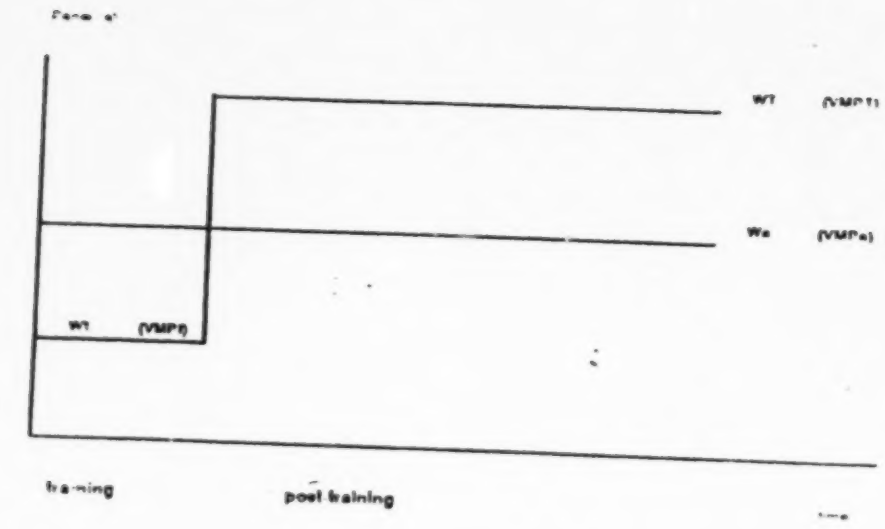
1 G. Becker, *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, National Bureau of Economic Research, New York, 1964.

Figure 1

General and specific Training



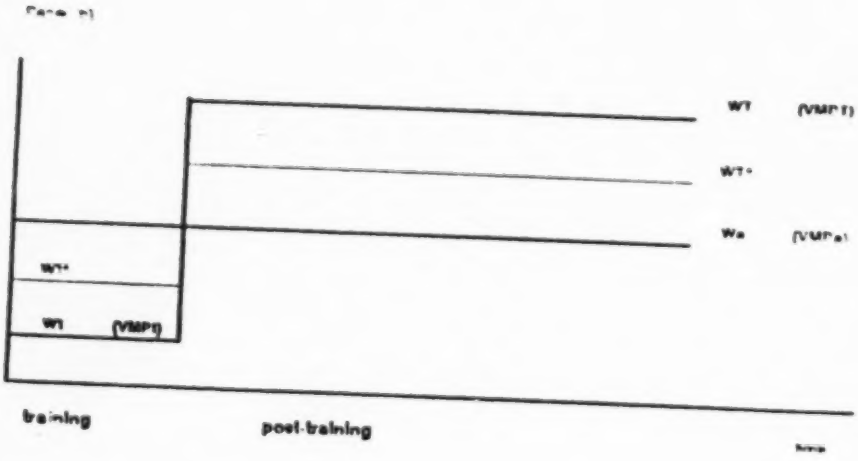


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Figure 1 illustrates the differences. It is assumed that both types of training raise productivity by the same amount and that, for simplicity sake, the training, conducted over a set period, is the only factor that changes worker productivity.

Panel (a) illustrates the case of general training. In the absence of training the individual would earn a wage of W_a, equal to the value of the marginal product of labour without training (VMP_a). During training the value of the trainee's marginal product (VMP_t) is low, zero, or even negative, but after training rises to VMP_T. The cost of training is, therefore, the difference between VMP_a and VMP_t during the training period, while the benefits arise from the difference between VMP_T and VMP_a after training. Because training is general, however, the firm, if it wants to retain the services of the individual once the training is completed, is obliged to pay a wage at least equal to VMP_T, for that wage (W_T) is what the trained worker is worth on the labour market. This being the case the firm is not in a position to capture any of the benefits. It will not then be inclined to bear any of the cost, and will, as a consequence, pay a training wage of only $W_t = VMP_t$. Individual workers, on the other hand, can accept this low wage during the training period if W_T, the wages they will receive after training, are high enough to generate a reasonable return on the sacrifice they have incurred.

Panel (a) can also be used to illustrate the case of specific training. Here the costs and benefits of training are the same in terms of productivity losses during training, productivity gains as a result of it. The gains, however, can accrue entirely to the firm since there is no necessity to pay workers a higher wage after training. As the training is only applicable in the training firm, the individuals' productivity, whilst it rises to VMP_T if they stay with the firm after training, falls back to VMP_a if and when they leave. The firm therefore is not required to increase wages above W_a in order to retain their services. That being the case they can bear the full cost of the training, by continuing to pay trainees their normal wage W_a during training, (indeed, they would be obliged to pay W_a to the trainees in order to induce them to undertake the training), and still earn a reasonable return on their investment.

It is obvious that labour mobility is the crucial consideration in determining who will bear the cost of training. The question is will the trained worker stay with the training firm long enough for the latter to recoup its investment. Becker's original model relies on there being complete freedom for workers to move between jobs, in response to wage differentials that adjust continually to productivity differences. In reality, of course, wages are not as flexible as that, nor workers as mobile.

Panel (b) in Figure 1 illustrates the tendency towards cost-sharing between workers and firms with respect to training that occurs in the face of uncertainty regarding labour mobility.

It could be, for example, that the training firm may be willing to fund (at least partially) general training if it is confident that the trained worker will not leave the firm (at least not for a sufficiently long period) if he or she is paid something less than W_T. Such may be the case where the firm faces little effective competition for its workers (the obvious example is a company town), or if there are high levels of unemployment in the occupations in which the training is undertaken, or if the firm is able to lock the workers into the firm, either through bonding agreements or through superannuation benefits, accumulated leave entitlements or whatever. If the firm can, without undue risk, capture part of the benefits (by paying, say, only W_{T^*} after training) it may be willing to share the cost of training with the worker (say, by paying a training wage of W_{t^*}).

Alternatively, the training firm may be sufficiently uncertain that specifically trained workers will stay in its employ long enough for it to recoup the costs of training, that it too may seek to spread the risk by sharing the costs. (After all, the cost of leaving for the trained worker is not high — an offer of anything above W_g could do the trick — whereas all the risks of this happening are borne by the training firm.) The firm could, for example, secure the trained worker's employment by offering him or her a wage of W_{T^*}, in return for a wage during training of W_{t^*}, that is, something less than the W_g offered previously.

In a world of uncertainty and less than perfect labour mobility, therefore, the difference in the cost sharing and wage patterns between generally and specifically trained workers may not be as marked as the original Becker model predicts. Nevertheless the broad propositions that arise out of the distinction are still useful:

- Workers have an incentive to at least contribute towards the costs of their training to the extent that the skills they acquire are generally marketable. Such would be the case in most pre-employment, pre-vocational, apprenticeship and traineeship programs.

- Firms will be reluctant to *pay for* any sort of training they do not consider they will be able to earn an adequate return on.

- Firms will even be reluctant to *provide* general training if they cannot pass on the costs to, or at least share them with, the workers to be trained, (or, indeed, any other interested party).

B. The Role of Government in Training

This section looks briefly at the rationale behind governments being the dominant supplier of VET and its major source of funding.

In the Becker model just described, even in the face of a moderate degree of uncertainty and imperfection in labour markets, rational decision making on the part of profit maximising firms, and by individuals wishing to maximise their lifetime earnings, will ensure that an optimal amount of both sorts of training would be undertaken. That is, the private calculus involving the matching of marginal private costs and marginal private benefits of training would result *ceteris paribus* in a socially optimal allocation of resources to training, where the marginal social costs and benefits would also be equalised. There is, in this scenario, no active role for governments to play in either providing or funding VET. Their function is restricted to ensuring that the playing field is as level as possible.

The situation we observe in practice, both in Australia and overseas, is, of course, that governments across the whole spectrum of political viewpoints take an active, indeed dominant, role in both the provision and financing of VET. Even where there is strong commitment to establish a viable and healthy training market there may not be any serious suggestion that governments should completely get out of the business of providing vocational education and training. It would appear that greater commercialisation does not necessarily imply privatisation.

Acceptance of a continued role for public provision does not imply, however, that the services being provided should be free of charge (or at only nominal cost to the users), or, indeed, should

automatically qualify for any level of public subsidy. Public financing of training (irrespective of who is providing it) should be constantly under review.

Justification of public funding of training — either to supplement funding by firms and trainees, or to substitute for either or both of these other sources — is generally offered on the grounds of efficiency and equity. That is, it is argued that (a) unsubsidised training markets inevitably lead to serious underinvestment in training by both firms and individuals, and/or (b) unsubsidised training markets typically restrict access to training to an unacceptable extent, and would be inherently inequitable.

The Efficiency Arguments

It can be argued that something less than a socially optimal level of resources would be devoted to training by an unsubsidised training market, on the following grounds:

(i) training generates significant externalities that a privately financed market would fail to take into account;

(ii) training markets would operate under an abnormally high level of 'imperfections'; and

(iii) the provision of training involves significant economies of scale.

- *Externalities*

The contention is that there are substantial benefits that flow from training that are not 'captured' or appropriated by either the trainees — in the form of higher earnings, improved employment prospects, greater job satisfaction and so on — or by the training firms — in the form of higher profits, increased market share, or whatever. Society as a whole also stands to gain in a variety of other ways, so it is argued. However, these extra, external, spillover benefits are generally not taken into consideration by either trainees or firms when they decide how much training to undertake, and, to the extent that they do not, private decisionmaking will lead to an underinvestment in training. Governments, therefore, need to step in with financial inducements to either or both parties to get them to undertake more training.

These claimed external benefits could be of two types:

(a) those associated with education in general;[2] and
(b) those more specifically related to VET.

A priori reasoning suggests the latter are likely to be more significant than the former. The typical narrowness of VET programs is likely to mean that most of their benefits will accrue to either the trainee or the firm, and that fewer of the broader, more nebulous externalities of the kind associated with general education are generated. On the other hand VET much more directly contributes to the skill base of the economy, and to the extent that this enhances the country's overall ability to compete internationally, and to adapt successfully to rapid technological change, then everyone stands to gain from an expanded VET sector.

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[2] See, for example, L. Maglen, 'Higher Education, Externalities and the Public Purse and Policy', *Economic Analysis and Policy*, September 1976.

- *Market Imperfections*

It has already been noted that private provision and financing of training under conditions of *some* uncertainty and *some* imperfections in the labour markets is still able to allocate a socially optimal level of resources to training. What is claimed, however, is that if the uncertainties and imperfections are too great private markets will allocate too few resources to training. The following examples of where this can happen are put forward:

(a) The existence of legislated minimum wages can restrict trainees' capacity to fund firm-provided general training by accepting a much lower wage during the training period. So too can rigidly administered wage structures and/or those that include unduly narrow wage differentials.

(b) Poaching — this is usually not a problem with specifically trained workers, and is only a problem with generally trained workers if the poaching firm offers a higher wage than the training firm is in a position to offer (i.e. something above W_T). This may be the case where there are economies of scale which allow larger firms to poach from smaller firms. (This could help explain why small firms typically provide less training than larger ones).

(c) A lack of knowledge of the true value of training, by either or both individuals and firms, could lead to serious underinvestment (or overinvestment) in training. In addition firms may overestimate the value to them of training undertaken by other firms, in which case they may seek to poach rather than train their own workers.

(d) Capital market imperfections may present difficulties for both trainees and firms in the financing of training. Lending for training purposes encounters the same difficulties as it does for any other form of human capital investment.

(e) Workers and firms may be more risk-averse than society as a whole. This may be particularly true of smaller firms and less educated workers.

- *Economies of Scale*

Firms may not provide enough training (irrespective of whether it is general or specific) because they lack the specialised physical facilities, the specialised managerial, supervisory and instructional expertise, the financial resources or the capacity to cover for employees off the production line whilst they are undertaking training. These deficiencies would obviously be greater in smaller firms, but may be less of a problem in larger ones. This, too, helps explain why smaller firms typically train less than larger ones.

The further question of whether the provision of the off-the-job component of training can be regarded as a natural monopoly — that is, whether the economies of scale are so great as to render this aspect of training being most efficiently conducted by a large specialised and centralised organisation such as TAFE NSW — needs further investigation. *A priori*, it seems unlikely, however, that this would be the case across the whole range of courses provided by the Commission.

A natural monopoly occurs where the level of output required to meet market demand for a good or service is such that the unit costs of production are considerably less for the monopolist

than they would be for any group of firms acting independently and in competition with one another. That is, the costs are regarded as "sub-additive". In this situation a competitive market structure is not viable, and it is more efficient to allow the monopolist to produce the total industry output. If average costs fall for all levels of output, then not only is it more efficient to have the natural monopoly produce the entire industry output, but the natural monopoly is said to be "sustainable", in the sense that no potential entrant could enter the industry and make profits. However, not all natural monopolies are sustainable in this sense. For example, those who enjoy this position largely through legislative barriers can find their dominance challenged once those barriers are lowered.

Equity and Access

The argument is frequently put forward that VET has an important social role to fulfil in meeting the needs of disadvantaged and unemployed youths, and those rejected and/or disaffected by general academic education.

That is, in addition to performing the vital economic function providing, as efficiently and effectively as possible, the skills needed to improve the productivity, adaptability and employability of workers, to enhance the competitiveness and profitability of firms, and hence raise the performance of the whole economy, TAFE has a community service obligation (CSO) it must also discharge. To the extent that this is a legitimate role for TAFE to play it should be costed and funded separately from its economic mission. Making TAFE's CSOs explicit, and funding them separately, minimises the consequences of any incompatibility that may arise between the two sets of objectives, and reduces the inconsistencies and confusions that can become apparent in the pricing of training courses.

C. The Pricing of Publicly Provided Services[3]

In the longer term, and in the broader context of the training reform agenda, the issues discussed in the two previous sections are of central concern. In the shortrun, and in the context of TAFE's present operations in NSW, they serve largely as background considerations. Since the NSW TAFE Commission looks and acts like a public utility, and enjoys a near, if not a natural, monopoly over many of the services it provides, reference to theories of public utility pricing are in order.

Marginal Cost Pricing

Pricing according to the marginal costs of production is the criterion used by unsubsidised profit maximising private firms under competitive conditions. *Ceteris paribus*, this will result in a

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[3] See S.J. Brown and D.S. Sibley, *The Theory of Public Utility Pricing*, Cambridge University Press, Cambridge, 1986, in which a number of the ideas in this section of the report are discussed. See also A.E. Kahn, *The Economics of Regulation: Principles and Institutions*, John Wiley and Sons, New York, 1970, 2 Vols; and P.R.G. Layard and A.A. Walters, *Microeconomic Theory*, McGraw Hill, New York, latest edition. A recent book from the World Bank (on developing countries) argues for an increase in the role of prices in financing and allocating educational and health services; analyses the adverse effects of many pricing policies on efficiency and equity; and shows how both efficiency and equity could be improved by adjustment to cost-recovery policies (E. Jimenez, *Pricing Policies in the Social Sectors: Cost Recovery for Education and Health in Developing Countries*, John Hopkins University Press (for the World Bank), Baltimore, 1987).

socially optimal allocation of resources. Because both producer surplus[4] and consumer surplus[5] rise as price moves toward marginal cost, from either direction, total surplus is maximised when price is set equal to marginal cost. Deviations of price from marginal cost reduce total surplus. *Deadweight loss* measures the cost to society of a decision not to set prices equal to marginal cost. "By setting prices efficiently we can maximise the size of the welfare" pie " — the sum of consumer and producer surplus — which we can then (in principle) divide up as we please".[6]

In the case of a single commodity, we achieve this maximisation of total surplus by setting price equal to marginal cost. We call the price which maximises total surplus the "efficient price". If we move to consider several commodities rather than just one, the efficient price in each market can be determined separately (i.e. without considering the interrelationships with other markets) so long as we can assume that demands in the individual markets are separate from those in the other markets, and so long as we can also assume that the marginal costs remain constant in each case. In these circumstances consumer surplus plus producer surplus aggregated over **all** markets is maximised by setting price equal to marginal cost in each market independently.

Although the practical problems of estimating marginal cost can often be substantial, Kahn has argued that the economic principles are clear-cut. Causal responsibility is the essential criterion of what belongs in marginal cost, and what does not. All purchasers of any commodity should be made to bear such additional costs (**only** such, but also **all** such) as are imposed on the economy by the provision of one additional unit. And second, it is short-run marginal cost to which price should at any given time be equated, because it is short-run marginal cost that reflects the social opportunity cost of providing the additional unit that buyers are at any given time trying to decide whether to buy.[7] Kahn comments, however, that "the practically achievable version of short-run marginal cost pricing is often likely to be pricing at average variable costs" (p. 84).

This result, that total surplus is maximised when price is set equal to marginal cost, continues to hold when we allow for non-zero cross-elasticities of demand between services and when we allow for marginal costs that vary with the level of output.

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4 Producer surplus is defined as the area to the left of the aggregated supply curve, where the supply curves for each producer (defined as marginal cost above the point where revenue covers the variable costs) are summed across producers. This is also the sum of quasi rents for each individual producer.

5 The change in consumer surplus due to the change in price of a commodity can be measured geometrically as the area between the two prices to the left of the demand curve (the schedule of quantities demanded as price falls from the old price to the new price). The definition of consumer surplus can also be thought of as total consumer benefit or utility from their aggregate consumption of the commodity minus expenditure on the quantity actually consumed.

6 Brown and Sibley, *op.cit.*, p. 34.

7 See A.E. Kahn, *The Economics of Regulation*, *op.cit.*, pp. 70-83 for a discussion of the problems in defining and measuring marginal cost.

The Problem of "Second Best"

The rule of setting price equal to marginal cost does not necessarily produce optimal results if it is applied only partially i.e. "it does not necessarily provide a correct guide for pricing in individual markets or industries if it is not being followed uniformly throughout the economy. This "problem of the second best" is obviously a very serious one in an economy shot through with imperfections of competition, monopoly power, and government taxes and subsidies, causing all prices to diverge in varying directions and degrees from marginal cost".[8] While the existence of pervasive imperfections in the economy greatly complicates the problem of efficient pricing, Baumol has advocated avoidance of piecemeal ameliorative measures that have not been sanctioned by careful analysis and the liberal use of common sense.[9] Kahn concludes that "there is no substitute for judgement when one comes to the job of applying our principles — judgement in identifying the imperfections elsewhere that bear most directly on the wisdom of the policy under consideration and in deciding in what way these imperfections counsel modifications of that policy".[10]

Allocation of Overheads

For a utility (such as TAFE NSW) which produces more than one product, the allocation of overheads which defines fixed cost is necessarily arbitrary. Obviously this can affect the measured marginal costs. If an activity is to pay its own way it will have to contribute something to fixed costs over and above the variable costs which by definition are zero if the activity were to be terminated. This benefit, defined as "quasi-rent" by Alfred Marshall[11], is equal to the difference between revenue and total variable cost.

This brings in the important dimension of time. Quasi-rent makes sense as a measure of the change in benefits due to short-run changes in prices. In the very short term, all costs are fixed. However, it can be argued that for a sufficiently long period of time all costs are variable. Moreover, the marginal cost will itself depend on the scale of production defined by the fixed cost commitment. In general, it is important to specify the period for which the costs and benefits are to be defined.

Aggregation

Note also that the responses of individuals to price changes are not observable using aggregated market data. Consequently, aggregating the responses of individuals to price changes implies that the welfare measures are measurable, at least potentially, at the aggregate level. However,

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8 A.E. Kahn, *The Economics of Regulation*, *op.cit.*, Vol. 1, p. 69.

9 W.J. Baumol, *Welfare Economics and the Theory of the State*, (1965), Harvard University Press, Cambridge, 2nd edition. He notes that the problem of piecemeal solutions demonstrated by the theory of the second best is one of interdependencies; but emphasises some interrelationships are more remote and therefore more safely ignored than others. Little has also urged the possibility and necessity of making informed judgements in individual cases about the proper relationship between prices and marginal cost.

10 A.E. Kahn, *The Economics of Regulation*, *op.cit*, Vol. 1, p. 196.

11 A. Marshall (1890), *Principles of Economics*, Macmillan, London.

formally two conditions have to be met: the error from using surplus to approximate compensating (or equivalent) variation must be small for all consumers;[12] and all consumers are treated equally.[13] For most public utility service offerings such as TAFE NSW the first condition is probably reasonable. However, if those consumers who are disadvantaged by a given policy are not actually compensated by those consumers who benefit from the change there can be difficulties arising from the second condition.

Ramsey Prices and the Inverse Elasticity Rule

A pricing scheme that maximises surplus can cause the firm to incur a loss. In general, whenever average costs are declining with increasing output — and this would be a typical situation in TAFE NSW — marginal cost is less than average cost and organisations which pursue a marginal cost pricing policy will fail to break even. Efficient public utility pricing may then require that prices be set so as to maximise total surplus subject to the constraint that the firm at least covers costs from its sales revenue. These are called "optimal second-best prices".

The literature argues that if we can assume constant marginal costs and independent demands, prices increase in markets with low price elasticities of demand. In markets with relatively high price elasticities markups are lower. This strategy alters markets as little as possible from the equilibrium providing the highest possible value of total surplus, i.e. price-equal-marginal cost.

In each market

$$\text{Markup} = \frac{P_i - C_i}{P_i} = \frac{\lambda}{e_i}$$

where P_i is the price in market i;
C_i is the marginal cost; and
e_i is the price elasticity of demand.

The proportionate constant λ adjusts markups in all markets uniformly to the point where the firm breaks even.[14]

This second best pricing rule is, perhaps, the best known result of the entire literature on efficient public utility pricing, where marginal costs decline with increases in output. For any

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12 Hicks considered consumer surplus as a means of expressing, in terms of money income, the gain which accrues to the consumer as a result of a fall in price. It is the "compensating variation" in income, whose loss would just offset the fall in price, and leave the consumer no better off than before (conversely for a price rise). The "equivalent variation" is another measure of welfare, which uses the new price as the welfare comparison point and asks how much the consumer would have to be paid to accept the old price (and to be no better and no worse off overall). See J.R. Hicks, *Value and Capital*, Oxford University Press, Oxford, 2nd Ed., 1939, Additional Notes A and B, pp. 329-335.

13 The welfare of society in this case is a simple summation of the welfare of each individual in society.

14 For further discussion, see Brown and Sibley, *op.cit*, Appendix, pp. 194-199.

pair of markets served by a regulated firm, the percentage deviations from marginal cost, weighted by the price elasticities of demand, should be equal for both markets to the markup. This has become known as the Inverse Elasticity Rule (or IER).

The Inverse Elasticity Rule was anticipated in 1926 by Frank Ramsey.[15] Prices which maximise total surplus subject to a breakeven constraint are often called Ramsey prices and the constant (λ) is termed the Ramsey number. In the special case where the price elasticity of demand in each market is constant, a value of λ can be derived which adjusts markups in all markets uniformly.[16]

Although Ramsey pricing can be extended to the case where demands are not independent and where marginal costs are not constant the analysis becomes more complicated. Instead of the simple own elasticity terms, the markups are weighted by "super elasticity" terms, which depend not only on the cross-elasticities, but also on the prices and quantities themselves.[17] However, the fundamental reasoning remains. Markets where a small change in price would alter consumption relatively little (compared to the situation where price is equated to marginal cost) receive high markups (and conversely). The change from including the cross elasticities is that when a rise in price exerts a large distorting effect in other markets then a low markup is in order (even if the price elasticity of demand in the original market is quite low).

Flow-through Effects

A model that presumes the industry sells all its production to final consumers is not descriptively accurate for many public utilities. In such cases it is important to consider not only the direct but also the indirect (or what Brown and Sibley call the **flow through**) effects of price changes for the utility's services. Different customers can be affected through downstream market equilibrium relationships. The evaluation proceeds much as before, provided that the demand and supply curves are **equilibrium** demand and supply curves, which reflect industry response to changes in the utility's prices.[18] Otherwise the price impact on every downstream firm and input supplier has to be considered. Clearly this is difficult, if not impossible, in practice.[19]

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15 F.P. Ramsey, (1927), "A Contribution to the Theory of Taxation", *Economic Journal*, Vol. 37, pp. 47-61. He was concerned with optimal excise taxation, and showed that when the effects of change in the taxes on the government's budget can be ignored (analogous to our assumption of negligible income effects), then the tax on each commodity should be inversely proportional to that commodity's price elasticity of demand.

16 The quantity demanded in each market takes the form of $Q_i = k_i P_i^{-e_i}$ where e_i is the constant price elasticity and k_i is a scaling term.

17 The rule becomes equating the percentage deviation of price from marginal cost, weighted by the super elasticity across markets. For further discussion see Brown and Sibley pp. 42-43 and the Appendix to Chapter 3, pp. 194-199.

18 See Schmitz, A., Just, R.E. and Hueth, D.L. (1982), *Applied Welfare Economics and Public Policy*, Prentice Hall, Englewood Cliffs, New Jersey.

19 However, if these conditions are not met, so that efficient pricing principles require an accounting of the flow-through effects from the markets of the regulated firm into myriad other markets, then substantial difficulties face the analyst in terms of required data and computational complexity.

Even if TAFE NSW is a natural monopoly in the sense that its costs are sub-additive it may not be an actual monopoly. It may supply a large part of the total industry output, but there may also be a substantial fringe of competitive suppliers. In the particular case with which we are concerned movements in the fringe boundary between TAFE NSW and alternative suppliers may be an important outcome of competition, including pricing strategies.[20]

Fully Distributed Costs

A practical problem concerns the allocation of costs to particular services, where substantial amounts of cost represent facilities which are used in common by several or all services (e.g. the library for a TAFE college, or departmental administration for courses provided by that department) and which cannot be allocated in a clear cost-related way to any single service. It is standard practice to break the cost of the firm down to the attributable cost of each service and common costs, unattributable to a particular service (i.e. fixed costs). In Ramsey pricing the common costs are covered: each service makes a contribution to covering common costs (depending on its price elasticity of demand), so that the firm breaks even overall. Much of regulatory practice, however, takes a different point of view requiring that each service be assigned a portion of the common cost and that its revenues equal the cost figure given by the sum of its attributable cost and its share of the common costs.

Under an alternative approach, known as Fully Distributed Costs (FDC), common costs are allocated to services and prices are set so that each service just covers its fully distributed costs.[21] Three approaches have been used most frequently: the relative output method (ROM);[22] the gross revenue method (GRM);[23] and the attributable cost method (ACM).[24] FDC involves numerous conventions regarding depreciation rates, valuation of assets at book versus

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20 An alternative paradigm is to consider a model of regulation that comprehends **both** the dominant firm **and** the competitive fringe.

21 Economists have been scathing in their criticisms of FDC. They particularly single out the fact that different FDC allocation methods are essentially arbitrary, yet can lead to widely different results. Secondly they argue that the cost concept is not marginal cost, but an "average cost" with no clear rationale. Thirdly they are critical that price elasticities of demand have no place in setting FDC rates, except perhaps in forecasting revenue. Finally, economists have argued that FDC methods are meaningless in testing for cross subsidy.

22 Under ROM the allocations of common costs to different services are based on each service's share in the total output of the firm.

23 Under GRM the allocation is based on each service's share in total revenue.

24 Under ACM the allocation is based on each service's share of the total attributable cost over all services.

replacement cost and many other items. It is also important that the prices and quantities are demand compatible (i.e. consistent).[25]

Differences Between Ramsey and FDC Pricing

A practical difference between Ramsey pricing and FDC pricing is that FDC prices can be calculated from the regulated monopolist's books (i.e. from TAFE's records). Ramsey pricing requires this type of information but also uses estimates of price elasticities of demand (which are often difficult to estimate). However, FDC pricing ignores price elasticity of demand; therefore if a new set of FDC prices involves substantial deviation from a pre-existing set of prices, the firm will not break exactly even. It is for this very reason that adjustments for "repression" effects have become accepted in many regulatory jurisdictions. On the other hand, if one grants that FDC pricing requires adjustment for "repression" effects of price changes (i.e. price elasticity of demand) the claimed advantages of FDC over Ramsey pricing are less marked.[26]

The Game Theoretic Approach

This approach to cost allocation is actually a theory of coalitions. It seeks to define cross subsidy, to compute prices which do not cross-subsidise (i.e. are "subsidy free") and to provide tests for whether or not given prices are subsidy free. The crucial question is whether there exist sets of prices for membership of the coalition which keep members from defecting from the grand coalition (N) to form other, smaller coalitions (S).[27] The "core" is (all) those sets of prices which keep the grand coalition from fragmenting.[28] Each possible subcoalition has its own stand alone cost and cannot be charged more than that, while the monopolist serving the N players must break even. Another interpretation is that all possible subcoalitions must bring in at least their incremental cost; and that if the solution to the cost game results in prices which exceed the benefits that players derive then they will defect.[29] Note (i) that when the cost

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25 Other approaches use simple concepts from the theory of cooperative games, where the object is to allocate responsibility for common costs among services so as to avoid cross subsidy; and the axiomatic approach to cost allocation, where the object is to start by specifying reasonable properties that an allocation mechanism should satisfy, and then deduce what price structures are consistent with the axioms.

26 Note that when the firm's joint cost function is additively separable, the FDC prices are subsidy-free; also that the attributable cost method (ACM) of fully distributed costing (FDC) has a clear axiomatic foundation and satisfies the six axioms of L.J. Mirman, D. Samet and Y. Tauman (1983), "Axiomatic Approach to the Allocation of a Fixed Cost Through Prices", *Bell Journal of Economics*, 14(1), pp. 139-151.

27 Brown and Sibley, *op.cit.*, p. 52.

28 Economists tend to equate subsidy-free prices with prices which are in the core. See Faulhaber, G.R. (1975), "Cross Subsidization: Pricing in Public Enterprises", *American Economic Review*, Vol. 65, pp. 966-977.

29 The analysis can be broadened to include price structures which permit prices to be varied not only between markets, but also between consumers in the same markets. A non-uniform price schedule is a tariff for one or more goods in which the consumer's total outlay does not rise simply proportionately with the amount of the goods purchased

function takes the separable form with a fixed cost, the FDC methods result in subsidy-free prices; and (ii) that if demand-compatible FDC prices are arrived at, they will satisfy the subsidy-free constraints of the cost game and will not violate the benefit constraints.[30]

Summary and Implications for TAFE Pricing Policy

Five points are particularly drawn from this discussion, which emphasises the importance of:

(i) taking account of the relationship between marginal costs and benefits when determining the quantities to be provided. Knowledge of incremental costs and benefits from expanding or contracting TAFE activities is the *sine qua non* of efficient production;

(ii) fixed costs and how they are funded, particularly in situations where higher levels of output can be produced at progressively lower levels of cost (e.g. through Ramsey pricing or fully distributed cost pricing);

(iii) the elasticity of demand for different TAFE products i.e. the extent to which demand alters as the price which is charged varies;

(iv) efficiency **and** equity objectives. Both need to be borne in mind; and they need not be in conflict; and

(v) considering the extent of provision of different TAFE courses, at different academic levels, in different locations, for different skills and occupations in terms of their effects on skill-mix and on other economic activities, firms and regions.

(e.g. quantity discounts or premiums). We have assumed that this is not a matter of current interest to TAFE NSW, at least at this time, and therefore we have not pursued it further. Note, however, that relative to a uniform price regime where price exceeds marginal cost, an appropriately designed non-uniform price schedule can make all consumers and the firm better off. The economic efficiency of non-uniform prices stems from the fact that they induce consumers to sort themselves according to their taste for the firm's output: it does not depend simply on cost differences between serving large and small customers.

30 Whether non-uniform price structures ought to be simple two-part tariffs or complex multipart tariffs depends on the elasticity of consumer participation. Since the marginal prices corresponding to optimum non-uniform outlay schedules follow a special form of the Ramsey Inverse Elasticity Rule the Ramsey IER unifies optimal uniform pricing with optimal non-uniform pricing (i.e. at each point on a non-uniform outlay schedule, the percentage markup between marginal price and marginal cost is inversely proportional to the elasticity of demand for an increment of consumption at that point). Brown and Sibley argue (*op.cit*, p. 161) that, in their quantitative investigations of the US market for telecommunications, Ramsey pricing yields moderate gains in total surplus over FDC pricing (perhaps 2-3%), but that optimal non-uniform pricing leads to a much larger gain (another 7-12%).

3. THE PRESENT POSITION IN NEW SOUTH WALES[31]

Having considered a range of conceptual matters in the previous section of the report, we now turn to examine some relevant aspects of the present situation in NSW. This section is divided into five parts concerned respectively with:

(i) the input and output controls considered appropriate by the NSW Government for State organisations classified according to their financial and market status;

(ii) the broad organisation of TAFE NSW, including Institutes, (colleges and campuses) and Training Divisions, with their respective roles and responsibilities in providing appropriate VET programs:

(iii) the funding of TAFE NSW programs — considering separately the traditional mainstream courses, the range of labour market training programs and the development of TAFE PLUS activities;

(iv) some of the factors that may be at work in deciding whether a training program is to be subsidised or charged out at full cost; and

(v) two recent reports on pricing issues prepared for the Commission. The first report was prepared by the Working Group to the Curriculum Strategy Group in September 1994. The second report was undertaken by Price Waterhouse Urwick and presented to the Commission in October 1994.

A. Appropriate Controls

During 1989 the NSW Premier and Treasurer published a Cabinet-endorsed document outlining the principles for classifying State Government organisations. It also specified the controls considered appropriate for each category of organisation.[32] The document classified government organisations according to two criteria: financial status;[33] and market status.[34] The first criterion referred to the funding of an organisation's inputs. The paper stated that the more an organisation depends on the Consolidated Fund or other tax sourced income, the less autonomy it should exercise in the use of its resources. Such heavily subsidised organisations ("dependent for more than half their operating income on tax based funds", p. 2) belong to the "inner budget" sector and were to remain subject to controls over funding, staffing and other necessary inputs. In relation to the second criterion the document argued that "a fully or partly competitive market only exists where an organisation's outputs are sold at or near commercial prices (i.e. recover at least half their cost of production)" and that "the more competition an organisation faces from alternative sources of supply, the more autonomy it should enjoy in

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31 This section was written prior to the NSW State election of March 1995.

32 NSW Government, *Classification and Control of State Organisations*, NSW Government, Sydney, June 1989.

33 Financial status was defined as "the extent to which they are financially self sufficient (as against having to depend on tax based subsidies)".

34 Market status was defined as "the degree to which they are competitive (as against monopolistic or non-competitive) in providing goods and services".

determining the type, quantity, quality, pricing and distribution of its goods and services" (p. 3).[35] The document also argued that in the private sector the market operates as an accountability mechanism, but in the public sector where this mechanism may be weak or non-existent "the government will need to apply accountability requirements on its organisations (e.g. accounting standards, reporting requirements, external audits, performance targets and reviews, etc.). These too will vary according to the class of organisation" (p.3).

Using the criteria of financial and market status, six basic types of government organisation emerge, ranging from Government Service to Commercial Enterprise. The minimum controls were imposed on each class of government activity according to their degree of self-sufficiency and competitive market status (see Figure 2). TAFE NSW — being heavily subsidised and monopolistic (see Appendix A, p. 36) — was classified in the inner Budget sector, with maximum controls on both inputs and outputs.[36] Appendix A of the document shows 1986-87 recurrent expenditure of $409.7 million and Consolidated Fund Receipts (excluding from the Commonwealth) of $2.1 million (or 0.5 percent, a percentage even lower than for the Police Department (0.9 percent)).

The document also noted:

(i) that scarcity of resources has put pressure on the public sector to improve efficiency and to find ways of financing activities off budget (i.e. without resort to tax revenues and Government grants). Inner Budget agencies are likely to be much more severely constrained than commercial enterprises.

(ii) that "some organisations are multi-faceted" (p. 4) i.e. an organisation which predominantly belongs to one class (say TAFE as Government Service) may incorporate activities which belong to another class (e.g. TAFE activities as Commercial Business — "self sufficient semi competitive bodies" — or Commercial Enterprises — "self sufficient fully competitive bodies").[37] In such cases less onerous controls can be imposed on the more competitive and less subsidised activities than on the organisation as a whole (and its more heavily subsidised and less competitive activities in particular).[38]

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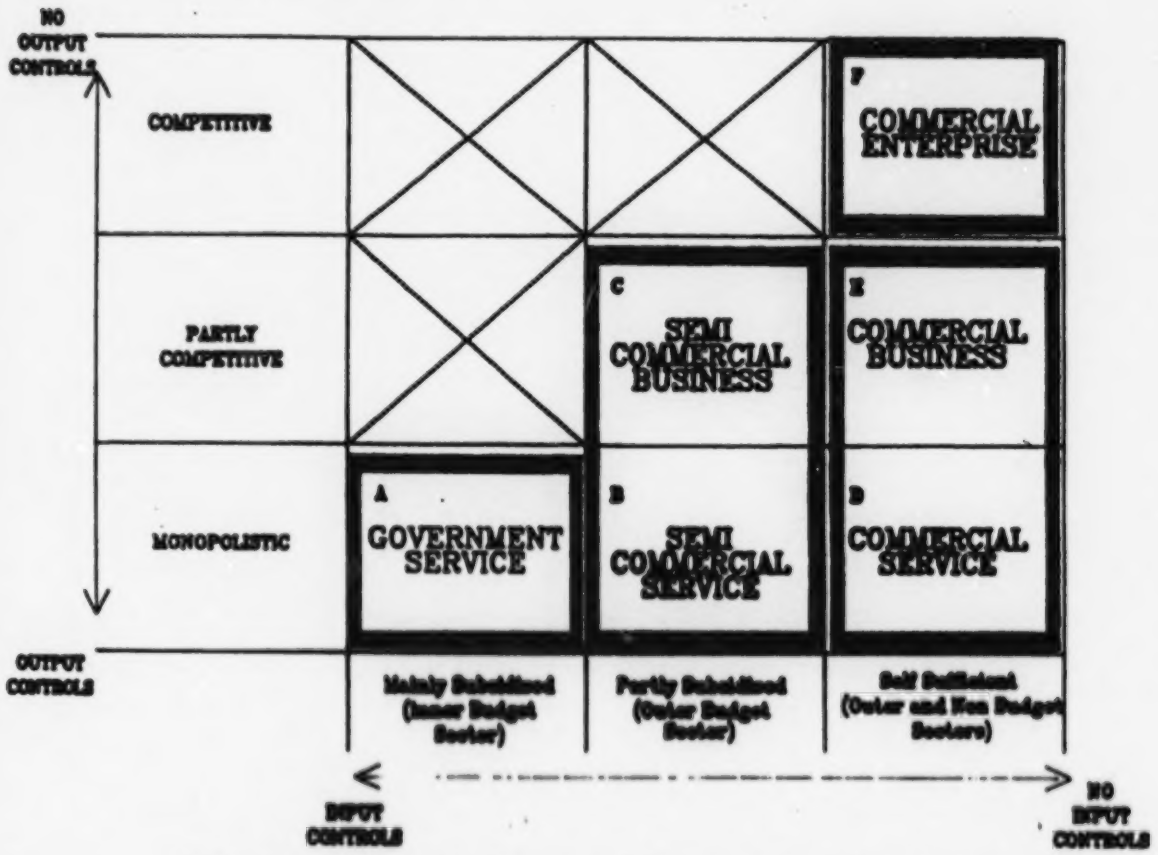
35 "When such [truly competitive] forces are absent or insufficient (e.g. a monopoly) government controls on the price, quantity, quality, nature and distribution of outputs are needed as a substitute.

36 For example, "The monopolistic position of the activity justifies complete Government control of all aspects of programs and pricing" (Appendix B, p. 40).

37 In relation to pricing controls the NSW Government document of June 1989 states that "Departments which have activities which recover more than half their operating costs from client (i.e. user) charges should arrange with the Treasurer for such activities to be taken off budget and treated as distinct semi-commercial or commercial operations" (Appendix B, p. 40).

38 The NSW Government document states that, for Commercial Enterprises, the pricing policy should: recover direct and indirect costs; yield a rate of return on assets consistent with industry norms, risks and characteristics; and allow payment to the Consolidated Fund of the equivalent of all Commonwealth and State taxes and charges not otherwise payable by law, plus a dividend set in accordance with industry norms (see p. 40).

Figure 2: **Classification of Government Owned Organisations for the Purpose of Determining Application of Government Controls**



Source: NSW Government, *Classification and Control of State Organisations*, NSW Government, Sydney, June 1989, p. 16.

There appears to be a clear implication that the more TAFE NSW activities, or some activities such as TAFE PLUS, operate on lower levels of subsidy and on a more competitive basis with alternative suppliers (e.g. private providers or other state TAFE providers) the lower the level of input and output controls to which they will be subject. *Ceteris paribus*, they are then likely to be more flexible in meeting market needs for education and training, less bureaucratic and more autonomous. Economic theory strongly suggests that under such conditions higher levels of efficiency in the use of scarce resources are likely to be achievable.

B. Organisation of TAFE NSW

The TAFE NSW Commission provides its courses and programs through Institutes covering defined geographical regions within NSW. All colleges and campuses within the TAFE NSW system are grouped into eleven Institutes (plus an Institute for external studies known as the Open Training and Education Network - OTEN). Each Institute is provided by the Commission, with a budget related to its educational profile. It is for the Institutes to work out

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mainstream programs and the employment conditions of TAFE NSW teachers are ultimately determined by the Minister. Other policy decisions are determined by the Managing Director with the advice of the Policy Executive which primarily consists of the eleven Institute Directors. There is thus less variation in policy across the TAFE NSW Institute system than is found in the Victorian system with autonomous TAFE Colleges. There is some competition between Institutes, but little competition within Institutes. Of the eleven geographical Institutes five are in metropolitan Sydney (Western; Northern; Sydney (i.e. central); Southern; and South Western) and six are outside Sydney (Illawarra; Riverina; Western; New England; North Coast; and Hunter). In 1993 there were 31 colleges or campuses in the city (an average of 6.2 per Institute) and 80 colleges or campuses in the country (an average of 13.3. per Institute), with average student enrolments of 7,461 and 2,106 respectively per college or campus (average EFTS enrolments of 2,709 and 674 respectively). Total student enrolments in TAFE NSW in 1993 were 423,614 — about 1 in 13 of the State's population over 15 years of age — (EFTS enrolments were 144,854),[40] of whom 55 percent were in metropolitan Institutes (58 percent of EFTS).[41] There were about 1,400 different courses, most of which provided training directly related to preparation for or advancement in employment. TAFE NSW employed more than 16,000 people on an equivalent full-time basis, of whom 12,000 were educational and 4,500 were administrative and support staff.

The Institutes are expected to keep in touch with their local regions, to develop courses and training programs which meet local community, business and industry needs. Now that all colleges and campuses in the same geographical area belong to the same Institute they are expected to cooperate and share resources. The Institutes are also intended to link TAFE NSW with other educational bodies, including ensuring that TAFE courses and qualifications are in line with what is happening in the schools, universities and industries of the region. There is significant specialisation in course offerings between Institutes, which reflects both historical factors and regional variations.

Training Divisions are the direct links TAFE NSW has with industry. Although each of the thirteen training divisions covers a broad industry and training area for the State as a whole, it is located within a particular Institute. The training divisions vary significantly in size and the number of courses offered. For example, computing and information services has 12,000 students (36 course offerings) while business services has 96,000 students (112 courses). Some of the smaller divisions (rural and mining, for example) have large numbers of courses. Note that the changing distribution of population and economic activity in the State is likely to be as important for TAFE NSW in the longer term as the aggregate changes. Each training division is represented by a number of industry specialists and principal officers who work in specific skills and training areas. The training divisions consult with relevant industry boards, councils and community consultative committees to determine new and emerging education and training needs. Industry specialists are frequently members of the (tripartite) Industry Training Advisory Boards (ITABs) which advise governments on training matters and priorities. Training divisions approve courses run by Institutes through their college locations — the only way a college can have a course accredited is through the relevant training division. They develop courses and training programs which suit particular industries, jobs or specialist areas. They also have a responsibility to ensure that quality standards are met across the State in relation to the area

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[40] This includes 23,868 students enrolled in the external studies Institute (6,964 EFTS).

[41] In first semester 1993 there were nearly 16,000 high school students in TAFE NSW Institutes studying vocationally oriented subjects for their Higher School Certificate under the Joint Secondary Schools-TAFE program.

skills and training areas. The training divisions consult with relevant industry boards, councils and community consultative committees to determine new and emerging education and training needs. Industry specialists are frequently members of the (tripartite) Industry Training Advisory Boards (ITABs) which advise governments on training matters and priorities. Training divisions approve courses run by Institutes through their college locations — the only way a college can have a course accredited is through the relevant training division. They develop courses and training programs which suit particular industries, jobs or specialist areas. They also have a responsibility to ensure that quality standards are met across the State in relation to the area of their particular expertise. They act as advocates for particular skills and industries within the TAFE system and within the existing parameters affecting demand (including the heavily subsidised level of prices and charges).

As an example, the Sydney Institute of Technology, the largest of the TAFE NSW Institutes, enrolled 58,992 students (23,000 EFTS) in 1993 at one of its six colleges or campuses, which together ran over 700 major courses.[42] This Institute has responsibility for four Training Divisions (Arts and Media; Business Services; Personal and Community Services; and Pre-Vocational) which have State-wide responsibilities for developing high quality educational programs. The Institute also administered the Aboriginal Development Division, the Drug and Alcohol Education Unit, and the TAFE English Language Centre which runs intensive English language classes for international students planning to do further TAFE NSW courses.[43] We were informed that the Sydney Institute employed some 3,000 staff and had an overall budget of some $200 million per annum.

C. Funding of TAFE NSW Programs

The programs and services of the TAFE NSW Commission are funded predominantly by the NSW State Government, although the Commonwealth Government funds more than half the capital works program, and some of the Commission's recurrent expenses, mainly through programs for the unemployed and other disadvantaged groups. Total expenditure was $989 million in 1992-93. $852 million was recurrent expenditure, 71.4 percent from the State Government ($614 million for staff salaries and related payments and $238 million for maintenance and working expenses: see Figure 3). $176 million of recurrent funds came from Commonwealth grants. $137 million was spent on capital works ($79 million from the Commonwealth). Figure 4 shows payments by program.[44]

In 1992-93 revenue from commercial activity of the Commission, including customised and enterprise-specific training programs for industry increased significantly to more than $19

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42 *NSW TAFE Commission, 1994 TAFE Handbook*, NSW TAFE Commission, Sydney, 1994, p. 28.

43 The Centre, which began operating in August 1992, uses modern methods for language teaching, including language laboratories and computer-assisted learning. In 1992-93 162 international students attended the Centre, generating almost $0.6m in gross income.

44 The total replacement value of buildings was estimated in 1992/93 at $1.88 billion, of which 58% was 0-20 years old, 23% 21-40 years old, 9% 41-60 years old, 6% 61-80 years old, 2% 81-100 years old and 3% over 100 years old (see *NSW TAFE Commission, Annual Report 1992-93*, NSW TAFE Commission, Sydney, October 1993, p. 87.

million.[45] Additional sources of revenue included almost $30 million from the student administration fee. Commonwealth-funded fee-for-service programs expenditure amounted to over $64 million, while programs provided on a fee-for-service basis to other State government agencies such as the Building Services Corporation and the Departments of School Education, Corrective Services and Health amounted to more than $14 million. This total of $127 million represented about 15 percent of total recurrent expenditure of $852 million in 1992-93.[46] During 1992-93 TAFE NSW also enrolled about a thousand full-time international students from 35 countries (over a quarter from Hong Kong and nearly half from Hong Kong and Indonesia).[47] Gross income to TAFE NSW was $6.5 million. The Commission expects international participation to stabilise at about 2,000 full-time equivalent students. In addition, TAFE NSW won nine international projects with a value of $0.5 million in its own right and a further 15 projects, with a gross value of $0.6 million through Austraining International Pty Ltd (in which it is one of three partners). Projects have included consultancies, training needs analyses, customised fellowship proposals, training programs in aircraft maintenance, hospitality, mining, management and supervision, meat inspection and computing.

TAFE NSW Commission operates a different pricing policy for each of its three main types of program:

- mainstream courses
- labour market programs
- TAFE PLUS

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45 Some individual projects can be quite substantial. For example during 1994 TAFE PLUS won a $4.5m contract for the provision of naval advanced technical training for the Royal Australian Navy. It was won following an Australia-wide competitive tender and requires the Sydney Institute of Technology to provide marine and electronic technician training at Ultimo for about 1,500 leading seamen and petty officers. This contract builds upon the previous three-year alignment training contract which was awarded to TAFE NSW and CCT (WA) in 1993 for the training of more than 2,500 RAN personnel. The new ATT training is designed to provide accredited training to Advanced Certificate level. It is the largest commercial contract ever signed by TAFE NSW.

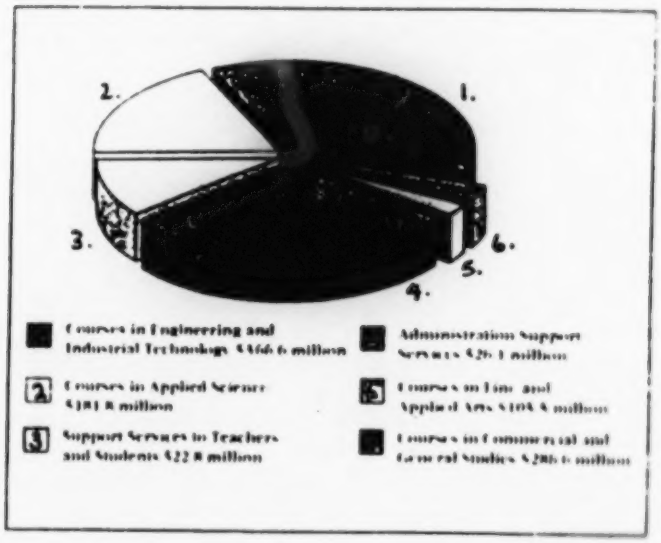
46 Expenditure on capital works and services totalled another $137m, including $77.2m for major building projects and $49.5m for equipment (including $11m for computing equipment). See *NSW TAFE Commission, Annual Report 1992-93*, NSW TAFE Commission, p. 88.

47 Most programs available to full fee-paying overseas students are full-time vocational courses. Demand has largely been for study within Sydney. Fee income is divided equally between the College providing the course and reimbursement for central support services. In 1994 the full fee was $8,000 per annum.

Figure 3: Summary of Expenditure

Source: NSW TAFE Commission, *Corporate Report 1992-93*, p.15.

Figure 4: Payments by Program 1992-93


1.
2.
3.
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5.
6.
Courses in Engineering and Industrial Technology $166.6 million
Administration Support Services $26.1 million
2 Courses in Applied Science $181.8 million
5 Courses in Fine and Applied Arts $104.8 million
3 Support Services to Teachers and Students $22.8 million
Courses in Commercial and General Studies $286.6 million

Source: NSW TAFE Commission, *Corporate Report 1992-93*, p. 15

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- *Mainstream Courses*

The great majority of students in TAFE NSW are in the traditional mainstream courses. In these programs, which are open to all and where students are selected on academic merit, costs of provision are heavily subsidised. There is no differentiation in the level of charges to reflect variations in provision costs, except that the general charge of $75 per student per semester ($140 per annum) per course at certificate or advanced certificate level is $225 per semester (or $450 per annum) at associate diploma or diploma level.[48]

Students are also eligible for income support from the Australian Government. The AUSTUDY scheme provides financial assistance on an income and assets-tested basis to students who are 16 years or over and studying full-time, or to sole parents in part-time study enrolled in an approved course. To the extent that imputed costs tend to be lower for TAFE students than for students in higher education, similar student assistance payments represent a higher proportion of earnings foregone (and thus a higher level of subsidy for this element of costs). HECS charges apply to students in higher education but not in TAFE courses. As well as AUSTUDY and ABSTUDY[49] benefits, tertiary level students may apply for the Supplement — a voluntary loan that attracts no real interest charges — by trading in part of their mean-tested allowance.[50]

These charges are set centrally for the TAFE system as a whole. Individual Institutes, colleges or campuses are not permitted to vary them in the light of particular local circumstances. Costs can be calculated by Institute, costs for teaching and non-teaching staff separately, for student support and administration,[51] and for non-employee costs (by Institute and Training Division), costs divided by teacher or student contact hours (by Institute and Training Division), and for non-Institute expenditure (e.g. where an Institute fulfils a central support role or provides Training Division Support).[52] For example, total recurrent expenditure per teaching contact

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48 We were informed that some 20-30% of students in mainstream courses are receiving concessions i.e. not paying the full $140 per year per course. Until 1988 there had been no charge at all. It was suggested that an increase in the charges levied might increase commitment to study by a significant number of those enrolled. ABS information suggests that about 30% of TAFE students in NSW have their fees paid for them; for example, unions have traditionally sought that fees for apprentices be paid by their employer.

49 The ABSTUDY scheme provides financial assistance on an income-tested basis to students of Aboriginal or Torres Strait Islander descent. This assistance is paid to full-time and part-time students enrolled in an approved course. Students who are eligible for ABSTUDY may also be able to claim incidental allowances and living-away-from-home expenses.

50 Students who do not qualify for living allowances may be eligible for the Supplement in certain cases.

51 They totalled $212m (or 31% of the total of annual employee cost and total recurrent non-employee costs) in 1992-93.

52 For example, for the 1992/93 financial year see NSW TAFE Commission Planning and Evaluation Unit, *Resource Allocation Model Data Set*, NSW TAFE Commission, Sydney, July 1994. Summary data by Institute and Training Division were presented on: total

hour was $107.59 overall in 1992/93, ranging from $112.34 (Western) to $92.39 (North Coast) between Institutes and from $95.51 (for Transport) to $51.31 (for General Education) between Training Divisions, excluding student support and administration.[53] These are, of course, average costs in the various categories, not the incremental costs which would result from increasing or decreasing the level of particular education and training activities undertaken by TAFE NSW.

- ***Labour Market Programs***

The TAFE NSW Commission provides a range of labour market training programs designed to improve the further training and employment prospects of the unemployed. Labour market training programs conducted by Institutes include the State-funded Get Skilled courses for unemployed youth and courses servicing the Commonwealth's Jobtrain, Pre-Vocational Program and Australian Traineeship System (ATS) schemes. Courses are also provided for the Commonwealth-funded Special Intervention Program, which provides literacy, numeracy and English language assessment and tuition for people referred by the Commonwealth Employment Service. Enrolments in labour market training programs in 1992 included more than 10,000 in Jobtrain, more than 6,000 in Get Skilled and more than 3,000 in a total of 273 ATS traineeship courses. During first semester 1993 TAFE NSW also provided six months training for 800 unemployed young people under the Commonwealth-funded Accredited Training for Youth program (for 15-19 year olds who have been unemployed for more than 12 months) (see Figure 5). Of the students enrolled in 1992 in Get Skilled and Jobtrain courses, over 30 percent of the respondents were employed two weeks after completing their courses. Of the students enrolled as part of the Australian Traineeship System, approximately 86 percent of the respondents were employed on completion of their training.[54] We were informed that the Commonwealth tends to reimburse TAFE NSW for the incremental costs of providing national labour market programs. However, it appears that marginal costs would be difficult to calculate. In any case the Commonwealth appears to make no contribution to overheads and this would appear to violate both the Ramsey and FDC pricing rules.

- ***TAFE PLUS***

TAFE PLUS is the commercial arm of TAFE NSW and was launched in February 1992. It competes in the market place as a fee-for-service operation focussing on skills-based vocational training and provision of particular services developed for specific customers (i.e. enterprises).

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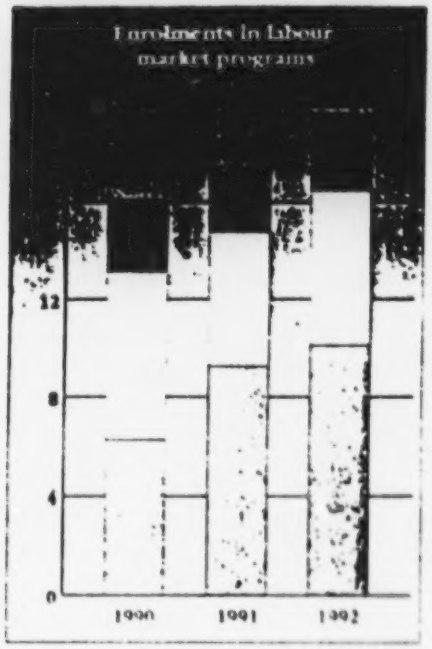
recurrent expenditure per full-time employee; total recurrent expenditure per teacher contact hour; and total recurrent expenditure per student contact hour.

53 Total recurrent expenditure per student contact hour was $6.89 overall in 1992/93, ranging from $6.01 (Western Sydney) to $8.18 (Western) between Institutes and from $8.29 (for Transport) to $2.74 (for General Education) between Training Divisions (again excluding student support and administration).

54 For further information see *NSW TAFE Commission, Annual Report 1992-93*, NSW TAFE Commission, Sydney, 1993. These programs are subject to change and have developed over time e.g. from the *Working Nation* initiatives announced by the Prime Minister in 1994. For the most up-to-date information contact the NSW TAFE Commission.

Figure 5: Enrolments in Labour Market Programs



☐ ATS Traineeship

☐ Get Skilled

☐ Jobtrain

Source: NSW TAFE Commission, *Annual Report 1992-93*, p. 67.

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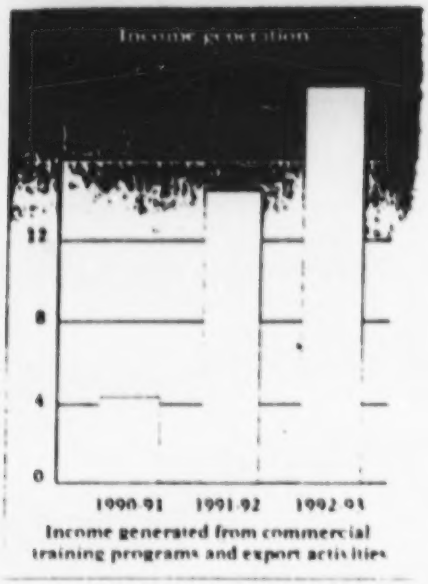
Figure 6: Income Generated from Commercial Training Programs and Export Activities



Source: NSW TAFE Commission, *Annual Report 1992-93*, p. 39.

TAFE PLUS provides short courses (focussing on specific skills in a range of commercial and industrial applications; for corporate clients as well as individuals); custom designed courses to satisfy the specific requirements of clients (designed for particular groups of trainees and delivered where and when required by clients);[55] consultancy services to help clients develop training strategies (including training needs analyses and skills auditing); and supplies training materials (including print, video and computer based materials, which can be used under license or sold to trainers and trainees), qualified and experienced trainers, and TAFE facilities if required (in urban or regional locations). TAFE PLUS services are offered state-wide, make

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55 For example, South Western Sydney Institute has provided the TAFE Marketing Certificate on-site for 20 employees of Smorgon A.R.C. and established its own training facility on-site at ICI Botany, where it runs classes two days per week for a year in the Plant Operations Certificate for up to 30 staff per year (charges are some $2,000 per student compared to $140 p.a. for an apprentice at a local TAFE college), while the Wagga Wagga Campus of the Riverina Institute has provided competency-based training in the workplace for Thiess Australia employees working on the construction of Junee Correctional Centre. Of the additional income generated some has to be remitted centrally, while some is kept by the Institute providing the course.

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use of TAFE NSW's extensive range of resources,[56] are recognised throughout Australia and meet the requirements of the Training Guarantee Act. A wide range of courses are provided.[57]

TAFE PLUS activities have been growing rapidly, but are still only a small proportion of total TAFE Commission activities (see Figure 6). TAFE PLUS charges much higher fees than mainstream courses (or labour market programs), although it is not clear whether full costs are covered, whether incremental costs are always covered and whether the substantial variations in the fees charged for different courses conform to a common pattern of profit over costs of provision (or subsidy).[58] Student assistance is generally not available to those enrolled on TAFE PLUS courses. On the other hand, costs and charges are likely to be tax deductible to participating trainees and their employers.

D. Which Programs Attract a Subsidy?

Whatever the outcome any set of procedures for the pricing and administration of a program is designed to achieve, the response it actually provokes will be largely determined by the incentives for each of the stakeholders that are built into those procedures, and not all of those are easy to predict or to control. The following are some of the possible incentive patterns we have identified under the current pricing arrangements in TAFE NSW that may be militating against the effective development of TAFE PLUS.

If TAFE NSW has its budget cut - or partly cut - in proportion to the amount it earns through TAFE PLUS and its other fundraising activities, then what incentive is there for it to vigorously market its customised programs in preference to developing its standard mainstream offerings?

TAFE Institutes (and/or the individual colleges or campuses) clearly are more inclined to promote and assist in the development of customised courses the greater the percentage of the proceeds they get to retain for their own use. The more financially independent it makes them the more they have an incentive to develop and promote the TAFE PLUS program.

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[56] In 1994 TAFE PLUS services were offered at over 100 Colleges throughout New South Wales.

[57] Among the best selling open courses, each of which consistently enrols over 1,000 students per year across NSW are: Restricted Electrical Licence-Electrical Disconnect/Reconnect; Electrical Self-Testing; and Authorised Inspection station training programs. The Marketing Manager of TAFE NSW has argued that TAFE NSW is capitalising on its competitive strengths of being recognised as the market leader in the provision of technical training programs and having the infrastructure to run them.

[58] See *TAFE PLUS Training Calendar*, NSW TAFE Commission. Fees varied widely e.g. from Tow Truck Drivers Education ($50 for three hours), Nylon Awareness for Plumbers ($60 for four hours), Automotive Airconditioning Licence ($75 for three hours), Occupational Health and Safety Induction Course (Building), $75 for three hours), Worm Farming ($90 for seven hours), Confidential Literacy/Numeracy Assessment ($100 for one hour) and First Aid ($120 for 18 hours) to much more expensive courses such as Korean or Indonesian ($550 for 72 hours), Customising AudoCAD ($890 for 54 hours) and Desktop Design and Publishing ($1,075 for 48 hours).

The more the staff members in the Institutes and individual colleges and campuses, who are charged with designing and conducting these special programs, receive in financial terms for their efforts, or are rewarded through promotion or with other tangible signs of recognition, the more they too will get behind the TAFE PLUS program. The less they see in it for them, the more difficult it is likely to be to get them to be enthusiastic participants.

Training Divisions have the responsibility for seeing that mainstream courses and programs are relevant to industry and meet the broad training requirements of employers. In doing their job they could be seen to be working at cross purposes to TAFE PLUS. There is a sense in which the Training Divisions tend to act as internal TAFE lobbyists for the interests of the firms within their respective industries, especially the larger ones, and those most active on the ITABs.

Firms have a strong incentive to so structure their training requirements, which they include in representations to the Training Divisions, that they meet the eligibility criteria for inclusion amongst mainstream offerings. In other words the firms have an incentive to make their training needs appear as general as possible rather than specific. If this is the case then they may not get an exclusive tailormade product, but the cost savings to them could be significant.

It could be that individuals make the assessment that they stand to gain more from undertaking mainstream (general) training than they do from TAFE PLUS (specific) training. Whilst the former may cost more (TAFE PLUS courses may cost them nothing if their employers meet all of the costs, whereas they may have to pay the administrative charge to enrol in mainstream courses)[59], the skills they acquire through the mainstream courses are marketable, whereas those acquired from TAFE PLUS may be less so, and the trainees have to depend upon the good graces of their firms to see any tangible benefit from it.

E. Two Recent Reports to the Commission

Two reports on associated pricing issues have been provided to the consultants. The first report was by a Working Group to the Curriculum Strategy Group (convenor Mr B. Syms; report to Management Executive, dated 8 September 1994). The report notes that, for the most part, structured training for operators represents a new area of training for TAFE. While the commercial rates and policies written for TAFE PLUS are currently being applied as well to the customised and workplace delivery of nationally registered modules from accredited mainstream TAFE courses, employers in areas where there are no designated trades believe this training should be subsidised in a similar way to apprentice training. The Working Group argued that a large percentage of operator training will need to be customised (either in content or delivery), that on-site delivery will often be required (e.g. to overcome problems due to shiftwork or special equipment needs) and that in the case of small or geographically remote enterprises it may be necessary for TAFE to share the delivery of training with the enterprise. They noted the widespread belief that application of the current TAFE PLUS commercial pricing policy to the delivery of mainstream operator training is inhibiting the take-up of this form of training by enterprises. It has also led to pressure from ITABs, employer bodies and trade unions for a review of the pricing policy.

The Working Group proposed that, for each initial training course on the National Training Board Register and accredited for mainstream delivery by TAFE NSW, the State Manager of the sponsoring training division may select a group of generic modules, which will be identified

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[59] Moreover, students on mainstream courses are eligible for AUSTUDY and ABSTUDY, whereas trainees on TAFE PLUS courses are not.

(in accreditation documents and on the Course Information System) as being "Commercial fee exempt" (CFE). These CFE modules will be limited to a maximum of 40 percent of a typical study path for the shortest major award course in which the modules are included.[60] The Working Group proposed that, for a trial period of two years, CFE modules be delivered by Institutes for the same charge as for mainstream delivery, together with the additional actual marginal cost to TAFE of the delivery mode employed (provided that the delivery is part of a contractually agreed training plan). Clearly, the additional training provision would be subsidised by the general taxpayer, there would be an incentive for firms to transfer such training into the TAFE system where possible, competitive provision by alternative providers would be disadvantaged and expansion of such training would be restricted by the (limited) additional resources available to TAFE NSW.[61] Where delivery of training is shared with an enterprise, it was proposed that TAFE NSW would charge the actual marginal cost of providing the training, together with the administration charge.

The second report was undertaken by Price Waterhouse Urwick.[62] The report emphasised that "TAFE NSW's industry funded and labour market program activities are marginal to its mainstream activities", that product and distribution decisions are driven by the mainstream objectives and that "the absence of strategic product and distribution decisions has removed the need for sophisticated pricing mechanisms and procedures". They described the current pricing policy as "a floor price approach" and concluded that "this opportunistic or incidental approach to commercial revenue generation will have some natural revenue threshold". In their view, if the status quo regarding commercial activities is to be maintained, then a floor pricing mechanism is the most practical approach to pricing decisions. However, they suggested that TAFE NSW make a number of focussed product and distribution decisions to move beyond the revenue threshold resulting from the organisational rationale behind current commercial activities, while noting that such strategic decisions "will have a significant organisational impact on the Commission as a whole, affecting structure, resource allocation, and the decision making structures". We tend to be in agreement with the broad thinking behind Price Waterhouse Urwick's recommendations. Their review also identified discrepancies in the manner in which different Institutes treat costs for commercial activities and argued that a number of costing issues need to be addressed. In particular, they recommended (and we agree) that a common approach be adopted when identifying and measuring the costs associated with commercial activities.[63]

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[60] The CFE status attaches to the module: it applies whatever the course in which a student enrols.

[61] The report notes that "Institutes will need to allocate physical and human resources to meet this new area of provision. The availability of these may limit the extent to which it can be adopted" (Report of 6 July 1994, p. 2).

[62] Price Waterhouse Urwick, *Final Report of Pricing Policy Review to TAFE Commission of NSW*, mimeographed, Sydney, October 1994.

[63] For example, they concluded that the current teaching rate ($60 per hour) is not representative of the actual teaching hour costs incurred in commercial activities (p. 9).

4. OPTIONS FOR THE FINANCING OF TRAINING

A. Broad Funding Options Open To Governments

This section seeks to put the current funding of TAFE NSW mainstream programs and the other fundraising activities of the Commission into a broader financial context. When considering the range of funding options that are open to governments it is important to keep firmly in mind the distinction between the *provision* of training and the *funding* of training. Questions of provision are concerned with whether state governments will wish to continue to act as the major suppliers of training through their respective TAFE systems, or will seek to encourage much more private provision of training than there is at present. Questions of funding, on the other hand, are concerned with whether state and federal governments will wish to continue to finance most of the cost of the training that is provided, or will seek to get other stakeholders — the trainees and employers — to take on an increasing share of the funding.

Figure 7 summarises the combinations of public (government) and private provision and funding that are feasible with respect to training. In so doing it locates what are the two ends of the spectrum:

(i) *Public provision/public funding:* training that is wholly provided through public training establishments and financed out of general government revenue. This more or less characterises the current position with respect to mainstream TAFE courses.

(ii) *Private provision/private funding:* training that is wholly provided and funded privately, either by private training establishments selling training programs at full cost-recovery prices, or by private or government-owned enterprises running their own self-contained in-house training programs for their own employees.

Figure 7 also identifies a range of options which are open for policy makers to consider, and arranges them according to the directions in which they lead. There are basically four broad directions which governments can take:

(i) They can retain the status quo, but expand, diversify and/or stabilise the public revenue base for training; that is, select options 1 or 2.

(ii) They can continue as the major training providers, but seek a greater degree of cost-sharing; that is, select options 3, 4 or 5.

(iii) They can use public funds to encourage greater private provision of training; that is, select options 6, 7, 8 or 9.

(iv) They can seek to encourage both greater private provision and greater private funding of training, that is, they can adopt a combination of the options available under (i) and (iii).

Figure 7: VET — Alternative Provision and Funding Options

	Public Funding	Private Funding
Public Provision	TAFE Mainstream Courses Funded out of General Revenue	**Options:** 3 User Charges (Course Fees, etc) 4 Production Activities
	Options: 1. Earmarked Taxes 2. Payroll Levy	5 Contract Training e.g TAFE PLUS Labour Market Programs
Private Provision	**Options:** 6. Subsidies to Employers 7. Assistance to Private Providers 8. Tax Concessions 9. Revolving Fund	**Private Provision With Full Cost Fees** **Fully Funded Private In-House Training**

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The following is a brief review of the options:

1. *Earmarked Taxes:* a dedicated tax base, specifically for the purpose of funding training activities. Examples from other countries include a designated proportion of the import tax on industrial machinery, and a levy on the value of large construction projects. The major virtue of an earmarked tax is that it is easier to predict how much it is likely to yield, and so it brings a greater degree of stability into the planning system.

2. *Payroll Levy:* a tax levied on the payroll of employers, (usually only those with a payroll or a workforce above a certain size, and usually set at a rate between one and four percent). This is the most common type of earmarked tax base for funding training. It has the virtue of being related to human resource development, but the drawback is that it can discourage the employment of labour.

3. *User Charges:* course fees; charges for materials used, accommodation and board, etc.; purchase by trainees of their own handtools and special clothing. These could be only nominal charges or they could be full cost-recovering. Hardship for poorer trainees can be ameliorated by such schemes as AUSTUDY and ABSTUDY, by deferred payment under HECS, or through the introduction of a separate subsidised trainee loan scheme.

4. *Production Activities:* TAFE colleges and campuses could be encouraged to sell the products and services the trainees produce in the course of their training programs. In addition, these establishments could use their facilities outside of training hours to produce saleable goods and services. All, or a substantial part, of the proceeds they get from these commercial activities would be retained to augment other sources of funds. While production unit activities can result in greater financial autonomy for training establishments, the danger is that they can also divert them from their main mission and/or distort their training agendas.

5. *Contract Training:* The attraction for TAFE NSW of such ventures as TAFE PLUS and the Australian Government labour market programs is that they add substantially to its revenue, and hence may render it less reliant on the state budget for its funding. If Institutes (or individual colleges or campuses) are able to retain all or part of the funds generated by these programs they, in turn, would gain a measure of financial independence from the central TAFE administration. Moreover these Institutes, colleges and campuses may be able to more productively employ spare capacity and, as they may be in direct competition with other training providers, (including other TAFE Institutes, colleges and campuses) this would provides them with the incentive to improve the efficiency and effectiveness of their training delivery. The drawback, however, may be that this more lucrative activity could crowd out the mainstream training activities of these establishments.

6. *Subsidies to Employers:* governments can stimulate the provision of in-house training programs among employers by offering grants that are earmarked for, or tied specifically to, their training activities. If not outright grants, this assistance could come in the form of matching grants or discounts on the purchase of government goods and services. One of the advantages of this type of program is that it not only directly increases the amount of training undertaken in industry, it also has an educative effect. Employers have a chance to evaluate the impact of training on the skills of their workforces and on the economic performance of their enterprises. The disadvantages of subsidies are twofold. Unless the eligibility rules are carefully worked out, and the programs closely monitored,

the possibilities for inappropriate use of funds can be unacceptably high. The other problem is that subsidies do not provide a strong incentive for self-reliance. In this respect, matching grants, with their *quid pro quo* arrangements, tend to be more effective than outright grants.

7. *Assistance to Private Providers:* governments may wish to foster the growth of private training establishments, either to provide direct competition with their own training establishments, or in areas or trades and industries that they cannot or do not wish to be active in. Assistance could be financial — such as direct grants, matching grants, tax concessions, or subsidised loans — or in the form of shared facilities (after hours use of its own training facilities, provision of staff training, or seconded personnel).

8. *Tax Concessions:* instead of the range of inducements included under option 6 the government may wish to use its taxation system to provide private employers with the incentive to conduct more of their own training. The possibilities in this direction include exemption from tax of any expenditure related to training activities. The rate of exemption could be anything up to 100 percent or beyond, (such as, for example, the 150 percent deduction for R&D expenditure). Another possibility is the accelerated writedown of equipment and facilities used for training purposes. The same advantages and reservations claimed and expressed about option 6 can be made here.

9. *Revolving Fund:* this is essentially a means whereby the government can provide enterprises with access to development funds at concessional rates, for the purpose of building up their training infrastructures (specifically designed buildings, purpose-built training facilities and equipment, etc.). The revolving fund could also be used to help build up the enterprises' training staffs, by providing funds for instructor training and development. It is generally not thought appropriate, however, for revolving funds to be used for the financing of training programs *per se*, as these are predominantly recurrent in nature. The advantage of this option is that, as a loan scheme, in which the enterprises are obliged to fully repay the amounts borrowed, the enterprises have a vested interest in ensuring that the funds are effectively utilised. The disadvantage is that enterprises have the strong incentive to find a way around the fund's regulations, so that they can make use of these concessional loans as a cheap means of financing other projects that have very little training content or instructional value.

Any or all of these options, of course, could be taken up simultaneously. They are not mutually exclusive, and combinations are quite common. One of the most frequently adopted ones is that where an earmarked tax, such as a payroll levy, is used to establish a fund out of which assistance is given to enterprises to increase the amount of training they themselves do. Assistance could be of the sort described under option 6, (and possibly option 7), or the fund could be a revolving one. As a further variation and combination of options, and as an incentive for the private sector to be more self-sufficient in training, it could be that those establishments that are already spending an equivalent amount on approved training programs for their employees qualify for exemption from this levy in the manner described under option 8. This, too, has been a common device used in the funding of training. The Training Guarantee Scheme is a very good example.

B. Specific Funding Options for TAFE NSW

We identify three longer-term options.

- *Maintaining the Status Quo*

The TAFE NSW Commission could decide to continue with present financing arrangements. This involves a mixture of mainstream TAFE courses, labour market programs, TAFE PLUS and VET provision in industry.

Mainstream courses are provided on the basis of virtually complete subsidisation of the financial costs of provision. It seems highly unlikely that this level of subsidisation is matched by the proportion of spillover rather than private benefits in the total benefits from VET. There are strong incentives for trainees and employers to accommodate to the mainstream courses provided. There is no clear resource allocation rationale for the pattern of courses provided. No attempt is made to balance the costs and benefits of different courses, at the margin, or with respect to the courses provided in different locations, firms, industries, etc. To the extent that CSOs are pursued they are diffuse, and often embodied in general policies across-the-board (e.g. low fees for students in all courses), rather than tightly targeted on specific access or equity objectives.

TAFE PLUS courses are clearly meeting an education and training need, and they have grown substantially (although from a small base). They provide the opportunity for local TAFE NSW Institutes (colleges and campuses) to respond flexibly to emerging needs, although it is not clear how much of the potential advantages are actually being gained at the local level. However, their inconsistencies and incompatibilities with TAFE mainstream courses are becoming increasingly apparent. These include the very wide variation in charges for similar activities classified in the two different streams, and the differential treatment of different industries, skill-mixes or localities. As already noted, from the viewpoint of firms, it is obviously in their interest to see that potential TAFE PLUS courses be provided as TAFE mainstream courses, even if this means that the courses have to be modified somewhat (so that it may not be exactly what they want).

Labour market programs provided by TAFE NSW are clearly serving a worthwhile purpose, but it is not apparent that receipts are fully covering the costs of provision, including an appropriate contribution to overheads or fixed costs.

Provision of VET in Industry — the present arrangements provide a strong incentive to transfer it into the publicly-funded sector, whenever possible, and so long as not too many compromises are made in the training provided. The Training Divisions, among their other functions, are actually charged with the responsibility of assisting firms, unions and industry bodies to achieve this outcome. In the longer-term, this probably tends to reduce the knowledge about education and training in industry, and so lessens its willingness to support it. It also implies a restriction on the expansion of VET due to limitations on public funding, especially at the state level, given the vertical imbalance of fiscal resources and responsibilities in Australia. Such a pattern of incentives runs directly counter to the recommendations of the Hilmer Report[64] and the objective of achieving a level playing field training market for VET.

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[64] National Competition Policy Review (Chairman: F. Hilmer), *National Competition Policy: Report by the Independent Committee of Inquiry*, AGPS, August 1993.

- *Commercial Fee Exemptions*

A second option has been identified by the Working Group to the Curriculum Strategy Group which reported in September 1994.[65] Although proposed for a trial period of two years, and designed to include a charge for the marginal cost to TAFE of the delivery mode employed, it was not advanced as a transitional approach to a more cost-reflective pricing structure throughout TAFE NSW. Rather, the proposal represents a retreat towards the more traditional, high-subsidy public funding/public provision model. Such an arrangement, if introduced widely, as appears to be proposed, would provide strong incentives for firms and industries to transfer training into the heavily subsidised TAFE system where possible. The physical, human and financial resources available to meet such additional demands might limit the scale to which it could be developed in practice. It would do nothing to enable more flexible responses to be achieved at the local level in TAFE NSW. The development, and perhaps even the continuation, of VET provisions by alternative providers would be severely disadvantaged. It would not address the current inefficiencies in resource allocation within TAFE NSW (and seems likely to further entrench them). It is not clear how the proposal would achieve specific equity objectives and, by diverting additional resources into general subsidies (including to those who do not need them to undertake education and training), it could result in a lower level of resources being available to pursue specific targeted CSOs. The proposal thus has deficiencies from both efficiency and equity perspectives. It does nothing to encourage improvement in the available information (e.g. on costs, benefits of training, or the elasticity of demand). It moves TAFE NSW in a direction contrary to that proposed in Hilmer, advocated by ANTA and likely to be adopted by the Council of Australian Governments.

- *Cost-reflective Pricing*

An alternative involves the adoption of more cost-reflective pricing in TAFE NSW, including in its mainstream courses and labour market programs. This is consistent with the approach being taken in other public utility areas by the State Government (see, for example NSW Government Pricing Tribunal Report on Water Charges).[66] This approach is predicated upon improvements in the costing information which is available, so that managers are aware of the incremental costs of changes in the provision of VET. Attention also needs to be given to the proportion of benefits derived from VET by the major stakeholders (especially employers, trainees and governments) and to estimates of the elasticity of demand in broad areas of VET.

Using 1992/93 aggregate data for TAFE NSW, fee revenue from students was some 4 percent of costs of provision (recurrent costs only)[67] i.e. 96 percent of the recurrent costs were being

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[65] For a fuller discussion of this Commercial Fee Exempt proposal see the final section of Part III above.

[66] This stresses, *inter alia*: the desirability on efficiency grounds of unwinding existing cross-subsidies: moves to more cost-reflective charges; improved knowledge about incremental costs of expanding (or contracting) output; importance of transitional arrangements; and scope for very substantial productivity gains.

[67] i.e. ($852m recurrent expenditure – $104m) + $30m raised from Student Administrative Fee. The $104m is total revenue in 1992/93 from Commercial Activities, Commonwealth Labour Market Programs, Fee for Service Provision for Other State Departments and Fees from Overseas Students: it is assumed that these revenues equal the incremental costs of providing the courses.

borne by the Government rather than by other stakeholders (trainees and firms). No doubt some expenditure is properly attributed to the pursuit of CSOs such as greater access and equity.[68] If we make the somewhat generous assumption that this is $200 million per annum, then fees still represent only 5.5 percent of recurrent cost in 1992/93. In our view it is highly unlikely that so high a proportion of the (marginal) benefits are spillovers, and such a small proportion accrues to trainees and firms.[69]

Moreover a more cost-reflective pricing system for Commonwealth labour market programs provided by TAFE NSW might lead to a larger contribution to overall overheads (the data available to us is insufficient to warrant a definitive conclusion). A more cost-reflective pricing system could also enable greater devolution of authority, increased decentralisation of responsibility, improved incentives 'at the chalkface', enhanced ability to adjust capacity locally and greater facility to meet the enormous variety of VET demands on a more flexible basis. It would also obviate the need to make decisions as to whether a course is mainstream, and therefore attracts a full subsidy, or is TAFE PLUS, and so attracts none at all.

Even if a decision was made to move in the direction of a more cost-reflective pricing structure, it would be a direction for change not an overnight adjustment. Careful thought would need to be given to appropriate transitional arrangements. The sort of changes which could be adopted, as opportunity offered, might include:

- improvements in the knowledge base of TAFE NSW, at both central and local levels, about the costs involved in incremental changes to VET provision (i.e. the marginal costs of changes).

- those targeted for increased charges might include: Commonwealth labour market programs, high income students, repeating students, students who already have a first degree and are in employment. There is considerable scope for price discrimination by TAFE NSW amongst students on mainstream programs.

- movement towards charges which reflect the differential costs of VET provision, and away from the current flat rate patterns of charges.

- greater autonomy at local level to respond to the signals being generated through the pricing structure i.e. if charges reflect costs, provision is indicated where demand covers charges. This implies raising the priority given to the demand side, and involves the provision of incentives for those who respond appropriately to market signals.

- part of the extra resources resulting from higher charges could be made available to pursue specific access and equity objectives (CSOs). It is quite possible to improve efficiency while maintaining or even enhancing equity.

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[68] It would also be possible to identify certain other purposes and explicitly pursue them (including through higher levels of subsidy) e.g. training in small businesses, in non-metropolitan areas or in particular industries.

[69] If the proper division was half and half additional resources could be explicitly targeted to pursue access and equity objectives. There could be, as a consequence, improvements in both efficiency and equity.

5. CONCLUSIONS

We have emphasised the range of stakeholders involved in the TAFE NSW system, especially trainees, firms and governments. We doubt whether the distribution of the benefits from VET courses is reflected in the distribution of the costs borne by the various stakeholders, and so can find little justification for the 'all-or-nothing' distinction between TAFE mainstream courses and TAFE PLUS.

We noted the organisation and funding of TAFE NSW, and contrasted it with our analysis of the economic issues involved. We concluded that it would be possible to improve both efficiency and equity.

In Section IV of the Report we present a range of broad options for funding VET which are open to governments. We then consider three specific funding options for TAFE NSW: continue with present arrangements; adopt the Commercial Fee Exempt proposal for TAFE PLUS; or move towards more cost-reflective pricing (with associated reforms). We present a range of arguments, note the potential efficiency and equity advantages from adopting the third option, and emphasise the importance of appropriate first steps and transitional arrangements.